

What is claimed is:

- Sub X*
1. An auto balancing apparatus for a disk drive, comprising:
a ball casing having a racing space and installed at a rotation means for
rotating a disk;
a plurality of balls which roll along a racing face formed in the racing space
for thereby implementing a balancing operation; and
a guide means for guiding the movements of the balls.
2. The apparatus of claim 1, wherein in said guide means, the balls
perform a balancing operation when the rotation means is rotated at a certain
speed.
3. The apparatus of claim 1, wherein said guide means acts as a
limitation means for limiting the operation of the balls when the rotation means is
rotated at a lower rotation speed, and an enhancing means for guiding the balls
toward the racing face.
4. The apparatus of claim 1, wherein said guide means is a limitation
means for preventing any movement of the balls before the balancing operation is
performed.
5. The apparatus of claim 1, wherein said guide means is an
enhancing means for guiding the balls on the racing face during the balancing
operation.

6. The apparatus of claim 4, wherein said limitation means is a plurality of ribs formed on a floor surface in the racing space at a certain interval.

7. The apparatus of claim 5, wherein said enhancing means is a plurality of ribs formed on a floor surface in the racing space at a certain interval.

8. The apparatus of claim 7, wherein said balls collide with the upper portions of the ribs during the balancing operation, and the moving speed of the balls is increased.

9. The apparatus of claim 7, wherein said ribs are spaced-apart at an angle of 90°, respectively.

10. The apparatus of claim 5, wherein said enhancing means is an inclined surface which is upwardly inclined from a center portion of an inner floor surface of the ball casing, which forms the racing space, toward the racing face.

11. The apparatus of claim 4, wherein said limitation means is a magnet installed at a floor of the racing space.

12. The apparatus of claim 5, wherein said enhancing means is an inclined step portion formed at an outer side in the racing space.

13. The apparatus of claim 12, wherein said inclined step portion includes:

Cut X a guide inclined surface extended from the floor surface of the racing space toward the racing face; and

a plane surface formed at a portion neighboring with the racing face.

5 ~~14.~~ The apparatus of claim 4, wherein said limitation means is a magnet installed on an upper surface in the racing space.

Cut X 10 ~~15.~~ The apparatus of claim 5, wherein said enhancing means includes: an inclined step portion formed at an outer portion of the upper surface in the racing space; and
a lower plate made of a metallic material and installed at a lower portion in the racing space.

15 ~~16.~~ The apparatus of claim ~~15~~, wherein said inclined step portion includes:

a guide inclined surface extended from an upper surface in the racing space toward the racing face; and
a plane surface formed at a portion neighboring with the racing face.

20 ~~17.~~ The apparatus of claim 4, wherein said limitation means is a magnet installed on a wall surface in the racing space.

Cut X 25 ~~18.~~ The apparatus of claim 17, wherein said limitation means is a plurality of magnets installed on an inner wall surface in the racing space at a certain interval.

19. The apparatus of claim 4, wherein said limitation means is a friction seat attached on a lower surface of the turntable which is an upper surface of the ball casing.

5 20. The apparatus of claim 4, wherein said limitation means is a friction rough surface formed on a surface in the racing space formed in the interior of the ball casing.

10 21. The apparatus of claim 20, wherein said friction rough surface is formed on a floor portion in the racing space.

22. The apparatus of claim 20, wherein said friction rough surface is formed on a racing face in the racing space.

15 23. The apparatus of claim 22, wherein said racing face is formed as a friction rough/surface when fabricating the ball casing.